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Original Research

Percutaneous Tube Drainage of Abscess Cavity: A Case Series with Review of Literature

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Abstract
We present placement oftube drain in patients of abscess as a minimally invasive method of management. Forty-one patients between 18 and 70 years of age were treated by this method from February 2012 to October2024, following an informed consent. Clinical diagnosis of abscess was based on history and clinical signs of inflammation. The treatment was carried out on IPD basis followed by surgical management under local/general anesthesia. A drain was placed percutaneously in the abscess cavity for 5-8 days. **Results:** The abscess healed in 5-8 days' time. There was no complication of residual or recurrent abscess, fistula or sinus formation. There was minimal scar formation in all cases.
Keywords: abscess, drainage, PBA (puerperial breast abscess), tube.

Introduction

Drainage of abscess has undergone a gradual change from invasive to minimally invasive procedure in keeping with the current philosophy of surgery. The standard surgical approach (invasive) of incision and drainage (I and D), breaking of loculi and insertion of a tube drain under local/general anesthesia[2] or daily gauze packing[3] has yielded to minimally invasive approach of aspiration/repeated aspiration of the abscess in the radiology department under ultrasonic (US) guidance.[4] We describe here an effective method of drainage of abscess that does requires minimal hospitalization or ultra-sonographic facilities.

Materials and Methods

Forty-one patients were treated by this technique from February 2012 to October 2024. Age ranged from 18 to 70 years. An informed consent was obtained from each patient prior to the procedure.

Patients generally presented with a history of fever and pain in region of abscess for past few days and had been on antibiotics and analgesics. Examination revealed a large diffuse bulge in the affected region that was tender and fluctuation was present. A diagnosis was confirmed by USG local part.

Results

This method of treatment has been applied to 41 patients from February 2012 to October 2024 (Table 1). There was no tube drain dislodgement in any patient. No tube drain replacement was required till it was removed.

A sample of pus was sent for culture and sensitivity in each patient. The result was reported as sterile in 6 patients and Staphylococcus aureus in 12 patients.

Patients were followed up to 2 months. The drain was removed in majority of our patients on the 7th day, otherwise further visits to the hospital were required on 10th day. Another follow up was planned after 4 and 8 weeks of the procedure. The mean drainage time was 5 days (range: 5-8 days).

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No recurrence of abscess or formation of fistula or sinus was noted in any patient. Scarring at operated site was noted in a few cases. Compared to repeated USG Guided aspiration, this method is less painful, less invasive, better cosmesis and cost effective.

Figure: Table 1

The drainage of abscess was carried out in operation theatre under local/spinal/general anesthesia. Patient was explained the procedure and an informed consent was taken. In supine position in the operation theatre, the abscess was drained by the following method:

Photograph showing procedure of tube drainage of breast abscess.

General anesthesia was given. A stab incision was given at the most fluctuant site of abscess following which pus was drained and loculi broken. A drain was inserted. The perforated portion of drainage tube was shortened to fit in the abscess cavity. The drain was fixed to the skin with 2/0 silk suture. A sample of pus was sent for culture and sensitivity test. The patient was shifted to ward and put on antibiotics (a combination of amoxicillin and clavulanic acid in the dose of 625 mg BID for 5 days) and analgesic (Boofer-SP (1 tablet) TDSfor first 5 days and SOS thereafter). Drain was irrigated with normal saline and betadine on 2nd day. When the pus discharge diminished to less than 10 mL the drain was removed. Compression bandage was applied. Follow up was done after 1, 3 and 8 weeks.

Site of abscess	Age Range (years)	No. of patients
Breast	20-35	18
Gluteal region	32-70	10
Psoas muscle	25-68	7
Upper and lower limbs	18-65	5
Parotid abscess	40	1

Discussion

According to Haagensen, Abscess should be adequately drained under general anesthesia. A curved incision in the skin line is used. Penrose drain is left in place for 72 hours.[1] The gold standard of puerperal breast abscess drainage thus described by Haagensenwas supported by Webster with the addition of gauze packing.[2] Patient required hospitalization, breast-feeding was discontinued and lactation was suppressed with bromocriptine 2.5 mg twice daily for 14 days in few patients. Alternatively more potent single dose of Cabergolamine is used to suppress lactation.[2] Breast distortion due to scarring or persistent discharging sinus develops in some patients.[4] Modification of this method by I and D, curettage and primary closure of the abscess cavity gives better scar formation and reduction in the cost of treatment.[5,6] By the method of primary closure the abscess heals in 5-7 days with a failure rate of 6%.[7] By placing the incision of drainage on the infra-mammary fold of the breast scarring on the visible part of the breast can be avoided.[8]

Ultrasound guided aspiration of pus, antibiotic therapy and repeated US guided aspiration of residual loculi of pus underline the importance of US imaging in modern management of PBA. Altogether 63 papers have been reported using this search.[9] It is an outpatient procedure in 53%, scar-less in 100%, complete healing occurs in 95% and breast-feeding is not interrupted in 42%.[3] A recent study concluded that breast abscesses smaller than 5 cm in diameter on physical examination can be treated effectively with repeated aspirations with good cosmetic results. Incision and drainage should be reserved for use in patients with larger abscesses.[10] In a cohort of 53 puerperal breast abscess reported by O'Hara *et al.* , eight were treated by primary I and D, in five patients abscess discharged spontaneously and in 18 abscesses resolved without any intervention.[11] In 18 patients breast abscess was aspirated on US guidance, in 19 abscess healed and for three patients I and D was required. Garg *et al.* reported a success rate of 84% in 25 patients of PBA.[12] Use of wide bore

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(18-gauge) needle for aspiration avoids the need for repeated puncture for aspiration.[13]

Ultrasonically guided percutaneous catheter drainage of 12 breast abscesses including one PBA was found successful in all the patients.[14] Some used US guided percutaneous placement of catheter in non-puerperal breast abscess with successful healing of all the abscesses.[15] Avoidance of repeated aspirations was the advantage of US guided placement of catheter in the abscess cavity. Local instillation of antibiotics into the breast abscess cavity is probably beneficial.[16]

The advantages of placement of tubedrainage for abscess are:

1. USG localization of the abscess cavity is always required.
2. Minimal discomfort is associated with the attachment of drain.
3. Drain collects remaining amount of abscess over a period of time (3-8 days).
4. Breast-feeding is continued in most of the patients. The evidence today recommends that breast-feeding should be continued during treatment of puerperal breast abscess.[17]
5. The procedure does not cause any complication.
6. Minimal hospitalization is required for patients.
7. Minimal scarring at incision sites.

It is convenient for the patients to carry out surgical drain care.

Conclusion

Management of various abscesses by tube drainage is cost-effective with minimal hospitalization. Placement of drain for abscess for 3-8 days is without anycomplication. This method of treatment can be instituted in most of the abscess over any body part.

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